

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

Applicant's or agent's file reference RL 594 PCT	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/EP2004/006767	International filing date (<i>day/month/year</i>) 23 June 2004	Priority date (<i>day/month/year</i>) 24 July 2003

International Patent Classification (IPC) or national classification and IPC
B60R 13/02, B62D 25/24

Applicant:

A. RAYMOND & CIE et al.

1. This report is the international preliminary examination report established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of **5** sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☒ (*sent to the applicant and to the International Bureau*) a total of **5** sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 Box No. I and the Supplemental Box.
 - b. ☐ (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand

24 December 2004

Date of completion of this report.

1 July 2005

Name and mailing address of the International Preliminary Examining Authority

European Patent Office – Gitschiner Strasse 103
D-10955 Berlin
Tel. +49 30 25901 – C
Fax: +49 30 25901 - 840

Authorized officer

David, P

Tel. +49 30 25901-574

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/006767

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which the was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purpose of:
 - ☐ international search (under Rules 12.3 and 23.1 (b)).
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3).
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, pages

4-8 in the version originally filed.
1-3 received on 19 May 2005 with the letter of 17 May 2005

Claims, no.

1-5 received on 19 May 2005 with the letter of 17 May 2005

Drawings, sheets

1/5-5/5 in the version originally filed

- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of those sheets may be marked "superseded".)

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Box No. V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-5
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-5
	No:	Claims	
Industrial applicability (IA):	Yes:	Claims	1-5
	No:	Claims	

2. Citations and explanations (Rule 70.7):

See attachment

10/565607
1AP20 Rec'd PCT/TO 23 JAN 2006
PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
RÜTTGERS, Joachim
A. Raymond GmbH & Co. KG
Teichstrasse 57
79539 Lörrach
GERMANY

PCT

**NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY**

(PCT Rule 71.1)

Date of mailing
(day/month/year)

1 July 2005

Applicant's or agent's file reference
RL 594 PCT

IMPORTANT NOTIFICATION

International application no.
PCT/EP2004/006767

International filing date (day/month/year)
23 June 2004

Priority date (day/month/year)
24 July 2003

Applicant
A. RAYMOND & CIE et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39 (1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State (...) may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exceptions from patentability, requirements for disclosure of the invention, clarity and support for the claims.

Name and mailing address of the International
Preliminary Examining Authority

European Patent Office – Gitschiner Strasse 103
D-10955 Berlin
Tel. +49 30 25901 – C
Fax: +49 30 25901 - 840

Authorized officer

Cornéglio, B.
Tel. +49 30 25901-574

Re.: Item V

1 In the present report, reference is made to the following document:

D1: US 3 851 794 A (HEHL K) 3 December 1974 (1974 -12-03)

Document D1, which is considered as the closest state of the art, discloses (see Figures and Column 1, Line 69 through Column 3, Line 16):

A closure cap for sealing an opening in a base part 7, with an exterior marginal web 2, 4 that can be inserted into the opening, with a shielding section 3 that protrudes past the marginal web 2, 4, and with a hot-melt adhesive 6 that is arranged in the area of the shielding section 3 and is deformable in a plastic manner when heated above a softening temperature, whereby configured on the marginal web 2, 4 is a snap-in ring 2 that grips the base part 7 when the closure cap is inserted into the opening, whereby a joint zone having a flexural rigidity that is reduced versus that of the shielding section 3 is configured between the marginal web 2, 4 and the shielding section 3, and whereby the distance between the gripping contact areas of the snap-in ring 2 and bottom side of the hot-melt adhesive 6, which faces the marginal web 2, 4 is smaller than the thickness of the base part 7 in the marginal area of the opening (see Figures 1 and 2) such that an initial tension is created in the joint zone when the closure cap is inserted into the opening,

from which the object of claim 1 differs in that **present between the shielding section and the joint zone is a groove-like transition section which is filled with hot-melt adhesive and which is open towards the exterior margin of the shielding section.**

The object of claim 1 is thus new. (PCT Article 33(2)).

The problem to be solved with the present invention can thus be seen as **to improve the connection between the shielding section and the hot-melt adhesive.**

For the following reasons, the solution for this problem that is suggested in claim 1 of the present

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(SUPPLEMENT)**

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application is based on an inventive step (PCT Article 33(3)):
the adhesive force of the hot-melt adhesive is mechanically reinforced by the shape of the transition section.

Claims 2-5 are dependent on claim 1, and thus also meet the PCT requirements for novelty and inventive step.

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Closure Cap

The invention relates to a closure cap in accordance with the introductory clause of patent claim 1.

Such a closure cap is known from US-A 3,851,794. In the previously known closure cap for sealing an opening in a base part, an exterior marginal web is present that can be inserted into the opening, and a shielding section is configured that protrudes past the marginal web. In addition, a hot-melt adhesive is provided that is arranged in the area of the shielding section and is deformable in a plastic manner when heated above a softening temperature. Configured on the marginal web is an abutment arrangement that grips the base part when the closure cap is inserted into the opening, whereby a joint zone having a flexural rigidity that is reduced versus that of the shielding section is configured between the marginal web and the shielding section. The distance between the gripping contact areas of the abutment arrangement and the bottom side of the hot-melt adhesive, which faces the marginal web, is smaller than the thickness of the base part in the marginal area of the opening such that an initial tension is created in the joint zone when the closure cap is inserted into the opening.

Additionally known from practice are closure caps that are configured with an exterior marginal web that can be inserted into an opening formed in a base part. Additionally present with these closure caps is a shielding section that protrudes past the marginal

web. In conjunction with that, a hot-melt adhesive that is deformable in a plastic manner above a softening temperature is arranged between the marginal web and the shielding section in order to seal the opening made in, for example, an automobile body panel as the base part, in a gas-tight and noise-reducing way after heating the hot-melt adhesive at least to the softening temperature and the gravity-induced dropping or pressing-on of the closure cap. What is disadvantageous about the previously known closure caps, however, is the relatively low process reliability with the gravity-induced dropping or the requirement for manual interventions for pressing on.

The invention is based on the problem of suggesting a closure cap of the type mentioned above which is distinguished by an improved connection between the shielding section and the hot-melt adhesive.

According to the invention, this problem is solved with a closure cap of the type mentioned above with the characterizing features of patent claim 1.

Through the fact that in the inventive closure cap the hot-melt adhesive is placed in a groove-like transition section that is open towards the exterior margin of the shielding section, the adhesive force of the hot-melt adhesive is mechanically reinforced by the shape of the transition section.

In a practical further development that is easy to execute in terms of manufacturing technology, the joint zone exhibits a groove section with a thickness of material that is reduced versus the adjoining interior areas. In conjunction with that, the groove section is advantageously open in the direction pointing away from the marginal web in order to avoid material-consuming filling.

In a further development, the abutment arrangement advantageously exhibits snap-in catches that can move transversely to the marginal web and are connected with the marginal web. This configuration is especially well-suited for sealing openings with thicknesses of material that are essentially the same in the marginal area.

In another further development, the abutment arrangement has a number of sawtooth-like projections configured on the marginal web. This configuration is especially well-suited for sealing openings with different thicknesses of material in the marginal area.

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PATENT CLAIMS

1. Closure cap for sealing an opening in a base part (13), with an exterior marginal web (5) that can be inserted into the opening, with a shielding section (4) that protrudes past the marginal web (5), and with a hot-melt adhesive (11) that is arranged in the area of the shielding section (4) and is deformable in a plastic manner when heated above a softening temperature, whereby configured on the marginal web (5) is an abutment arrangement (7) that grips the base part (13) when the closure cap (1) is inserted into the opening, whereby a joint zone (3) having a flexural rigidity that is reduced versus that of the shielding section (4) is configured between the marginal web (5) and the shielding section (4), and whereby the distance between the gripping contact areas (9) of the abutment arrangement (7) and the bottom side of the hot-melt adhesive (11), which faces the marginal web (5), is smaller than the thickness of the base part (13) in the marginal area (14) of the opening such that an initial tension is created in the joint zone (3) when the closure cap (1) is inserted into the opening, **characterized in that** present between the shielding section (4) and the joint zone (3) is a groove-like transition section (12), which is filled with hot-melt adhesive (11) and which is open towards the exterior margin of the shielding section (4).

2. Closure cap according to Claim 1, characterized in that the joint zone exhibits a groove section (3), the thickness of material of which is reduced versus adjacent interior areas.
3. Closure cap according to Claim 2, characterized in that the groove section (3) is open in the direction pointing away from the marginal web (5).
4. Closure cap according to one of the Claims 1 through 3, characterized in that the abutment arrangement (7) exhibits snap-in catches (8) that can move transversely to the marginal web (5) and are connected with the marginal web (5).
5. Closure cap according to one of the Claims 1 through 3, characterized in that the abutment arrangement (7) has a number of sawtooth-like projections configured on the marginal web (5).